CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 88-067

NPDES NO. CA 0029297

WASTE DISCHARGE REQUIREMENTS FOR:

UNOCAL CORP
UNOCAL CHEMICALS DIVISION
OAKLAND
ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. Unocal Corporation, Unocal Chemicals Division, hereinafter called the discharger, by application dated January 8, 1988, has applied for issuance of waste discharge requirements and a permit to discharge waste under the National Pollutant Discharge Elimination System (NPDES).

2. The discharger owns and operates a chemical distribution center located at 401 High Street in the City of Oakland, Alameda County. The site is presently bounded by the Oakland Estuary on the southwest, a former scrap yard on the northwest, and a lumberyard on the two sides from the northeast to the southeast. See Attachment A.

3. In November 1982 suspected pollution of soil and groundwater was discovered in a foundation excavation at the facility. Subsequently, investigations initiated in January 1983 detected various industrial solvents, including methylene chloride, ethyl benzene, toluene, and 1,1,1 - trichloroethane.

4. As of May 1987, studies indicated that the groundwater pollution extended vertically to at least a depth of 44 feet, which includes three water-bearing zones beneath the site. The shallow zone is located between depths of 1 to 9 feet below ground level, the deep zone is located between depths of 15 to 25 feet and a lower zone is located between 39 to 44 feet. The discharger seeks to cleanup and prevent the further migration of groundwater pollutants in the shallow and deep zones by groundwater extraction and treatment.

5. A subsurface site investigation report by the discharger's consultant, Brown and Caldwell (March 1983), stated that groundwater in the shallow and deep zones is discharged to the Oakland Estuary. The report estimated that during wet season conditions approximately 5000 gallons per day (gpd) of groundwater is moving through the shallow zone and into the Oakland Estuary.

6. The discharger proposes to develop a groundwater remediation program consisting of two phases. During Phase I, an interceptor trench will be constructed which will intercept and collect polluted groundwater from the shallow water-bearing zone. This water will be treated using a carbon adsorption system. Phase II will incorporate recovery wells for extraction of groundwater from the deep water-bearing zone. This water, along with water collected in the interceptor trench, will then be treated by an air stripping system prior to polishing with a carbon adsorption unit.

7. Waste 001, as defined in the NPDES application, will consist of up to 5320 gpd of groundwater which will be treated as stated in Finding 6 prior to discharge to the Oakland Estuary tributary to San Leandro Bay and Central San Francisco Bay. During Phase I, the flow of groundwater collected from the shallow zone will consist of up to 1440 gpd and will be discharged directly into the Oakland Estuary at the northwestern corner of the discharger's property. During Phase II, the flow of groundwater collected from both the shallow and deep zones will consist of up to 5320 gpd and be discharged directly to the Oakland Estuary at the southwestern corner of the discharger's property.

8. The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for Central San Francisco Bay, and contiguous surface and groundwater.

9. The beneficial uses of the Oakland Estuary, San Leandro Bay and Central San Francisco Bay include:

   a. Contact and non-contact water recreation
   b. Wildlife habitat
   c. Preservation of rare and endangered species
   d. Estuarine habitat
   e. Fish spawning and migration
   f. Industrial process and service supply
   g. Shellfishing
   h. Navigation
   i. Ocean commercial and sport fishing

10. The Basin Plan prohibits discharge of wastewater which has particular characteristics of concern to beneficial uses at any point where the wastewater does not receive a minimum dilution of at least 10:1 or into any nontidal water, dead-end slough, similar confined water, or any immediate tributary thereof.

11. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 10 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.

12. Exceptions to the prohibitions referred to in Finding 10 are warranted because the discharge is an integral part of a program to clean up polluted groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would effect beneficial uses. Should studies indicate chronic

effects, not currently anticipated, the Board will review the requirements of this Order based upon Receiving Water Limitation B.1.e.

13. The Basin Plan prohibits discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin." The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plan constitutes an acceptable control program for minimizing the discharge of toxicants to waters of the State.

14. Effluent limitations of this Order are based on the Basin Plan, State plans and policies, U.S. Environmental Protection Agency guidance, and best engineering judgement as to best available technology economically achievable.

15. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

16. The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

17. The Board, in a public hearing, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Unocal Corporation, Unocal Chemicals Division, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Effluent Limitations

1. The discharge of an effluent in excess of the following limits is prohibited.

Constituent	Units	Instantaneous Maximum
Benzene	mg/l	0.005
Carbon Tetrachloride	mg/l	0.005
Chlorobenzene	mg/l	0.005
Chloroethane	mg/l	0.005
Chloroform	mg/l	0.005
1,1 Dichloroethane	mg/l	0.005
1,2 Dichloroethane	mg/l	0.005
1,1 Dichloroethene	mg/l	0.005
1,2 Dichloroethene	mg/l	0.005
Ethylbenzene	mg/l	0.005
Methylene Chloride	mg/l	0.005

Tetrachloroethene	mg/l	0.005
Toluene*	mg/l	0.005
1,1,1 Trichloroethane	mg/l	0.005
Trichloroethene	mg/l	0.005
Vinyl Chloride	mg/l	0.005
Xylenes	mg/l	0.005
Acetone	mg/l	0.500
Methyl Ethyl Ketone	mg/l	0.500
Methyl Isobutyl Ketone	mg/l	0.500
Total PAH's**	mg/l	0.015
Total Phenols***	mg/l	0.500

* Toluene shall be reported down to the practical quantitation limit of 0.5 ppb in the self monitoring reports to be submitted pursuant to the attached Self-Monitoring Program.

** PAH's = Polynuclear Aromatic Hydrocarbons. The Total PAH's are defined as Acenapthene, Anthracene, Chrysene, Fluoranthene, Fluorene, Phenanthrene, Pyrene, Benzo (a) Anthracene, Benzo (a) Pyrene, Benzo (b) Fluoranthene, and Benzo (k) Fluoranthene.

*** Total Phenols are defined as Phenol, 2-Methylphenol, 4-Methylphenol, Methyl Phenol, 2,4-Dimethylphenol, 2,4,6-Trichlorophenol, and Pentachlorophenol.

2. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

3. TOXICITY: The survival of test fishes in 96-hour static renewel bioassays of the discharge of Waste 001 shall be a median of 90 percent survival and a 90 percentile value of not less than 70 percent survival.

Compliance of the bioassays shall be performed using two test fish species in parallel tests. One shall be three-spined stickleback, and the other shall be either rainbow trout or fathead minnow. If the effluent is documented to be excessively saline; whereby, both the rainbow trout and fathead minnow cannot be used effectively because of the salinity, then another test fish species, as appropriate, can be substituted with the Executive Officer's approval.

B. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:

a. Floating, suspended, or deposited macroscopic particulate matter or foam;

b. Bottom deposits or aquatic growths;

c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption whether at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be expected to be exceeded in waters of the State in any place within one foot of the water surface:

a.	Dissolved oxygen:	5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than specified above, the discharge shall not cause further reduction in the concentration of dissolved oxygen.	
b.	pH	The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.	
c.	Un-ionized ammonia	0.025 mg/l as N	Annual Median
		0.16 mg/l as N	Maximum at any time

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Provisions

1. The discharger shall comply with all sections of this Order immediately upon adoption.

2. Prior to commencement of discharging, the discharger shall submit a report containing the results of a startup monitoring program. This startup monitoring program shall contain the analyses of influent and effluent grab samples for priority and nonpriority pollutants including metals; phenols; volatile organic compounds; acids, base/neutral compounds; pesticides; ketones and polynuclear aromatic hydrocarbons using EPA Methods 624 and 625 and other EPA approved methods, as necessary. This report shall contain a discussion of the startup monitoring program, the treatment process, the chain of custody record of the samples

taken, the test results, a discussion of any constituents that were above nondetectable levels and a corrective action plan to reduce those chemicals below nondetectable levels, if warranted. In addition, the discharger shall submit follow-up operational status reports within the required quarterly self-monitoring reports. These reports shall be submitted to the Board for review and comments.

3. The discharger shall comply with the Self-Monitoring program as adopted by the Board and as may be amended by the Board.

4. The discharger shall also notify the Regional Board if any activity has occurred or will occur which would result in the discharge, on a frequent or routine basis, of any toxic pollutant which is not limited by this Order.

5. The discharger shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986, except items A.10, B.2, B.3, C.8, and C.11.

6. This Order expires April 19, 1993. The discharger must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

7. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Roger B. James, Executive Officer do hereby certify the foregoing is a full, true and correct copy of an order adopted by the California Water Quality Control Board, San Francisco Bay Region on April 20, 1988.

ROGER B. JAMES
EXECUTIVE OFFICER

Attachments:

Standard Provisions & Reporting Requirements, dated December 1986
Self-Monitoring Program
Site map

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM
FOR

Unocal Corporation

Unocal Chemicals Division

Oakland, Alameda County

NPDES NO. CA 0029297

ORDER NO. 88-067

CONSISTS OF

PART A

(dated December 1986
Mod. SBTD 1/23/87)

AND

PART B

PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Stations	Description
I-1	At a point in the groundwater extraction/ treatment system immediately prior to treatment

B. EFFLUENT

Stations	Description
E-1	At a point in the groundwater extraction/ treatment system immediately following treatment (Waste 001)

C. RECEIVING WATERS

Stations	Description
C-1	At a point in the Oakland Estuary at least 100 feet but no more than 200 feet downstream from the storm sewer discharge point.

II. SCEHDULE OF SAMPLING AND ANALYSIS

A. The schedule of sampling and analysis shall be that given in Table I.

III. Miscellaneous reporting

If any chemical additives are proposed to be used in the operation of the treatment system it shall be reported 30 days prior to their use.

IV. MODIFICATION TO PART A

A. Deletions:

Sections D.2.e, D.2.g, D.3.b, E.1.e, E.1.f, E.3, and E.4.

B. Modifications:

G.4 Written reports under G.4 shall be filed each calender quarter, once in January, April, July and October.

G.4.b The report shall be prepared in a format acceptable to the Executive Officer. The example in Appendix A is provided as guidance.

G.4.e The report will be prepared in a format acceptable to

the Executive Officer. NPDES Discharge Monitoring Report, EPA Form 3320-1, is provided as guidance.

G.4.e.1 Influent and Effluent Data Summary Reports shall be submitted only to the Regional Board Executive Officer, not to the EPA.

G.5 By January 30 of each year, the discharger shall submit, in place of the quarterly report, an annual report to the Regional Board covering the previous year.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No.73-16 in order to obtain data and document compliance with waste doscharge requirements established in Regional Board Order No. 88-067.

2. Was adopted by the Board on April 20, 1988.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer or Regional Board.

ROGER B. JAMES
EXECUTIVE OFFICER

Attachment: Table I

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	I-1	E-1	C-1									
Type of Sample	G	G	G									
Flow Rate (gpd)	W	W										
pH (units)		M	2/Y									
Dissolved Oxygen (mg/l and % saturation)			2/Y									
Un-ionized Ammonia (mg/l as N)		M	2/Y									
Temperature (°C)			2/Y									
Fish Toxicity, 96-hour (% survival)		Y										
EPA 601 & 602 (mg/l)		M*	2/Y									
Priority Pollutant Scan (including metals) (1)		Y*										
Ketones (mg/l) (2)		M*	2/Y									
PAH's and Phenols (mg/l) (3)	M	M	2/Y									

LEGEND FOR TABLE

G = Grab Sample
W = Once each week
M = Once each month
Q = Quarterly, once in March, June, September, and December
Y = Once a year
2/Y = Once in March and September
M* = Twice a month for the first four (4) months of startup of operation; reduced to once a month thereafter. This shall be performed for startups of Phase I and Phase II.
Y* = Once upon commencement of discharge another within six (6) months of startup and once a year thereafter

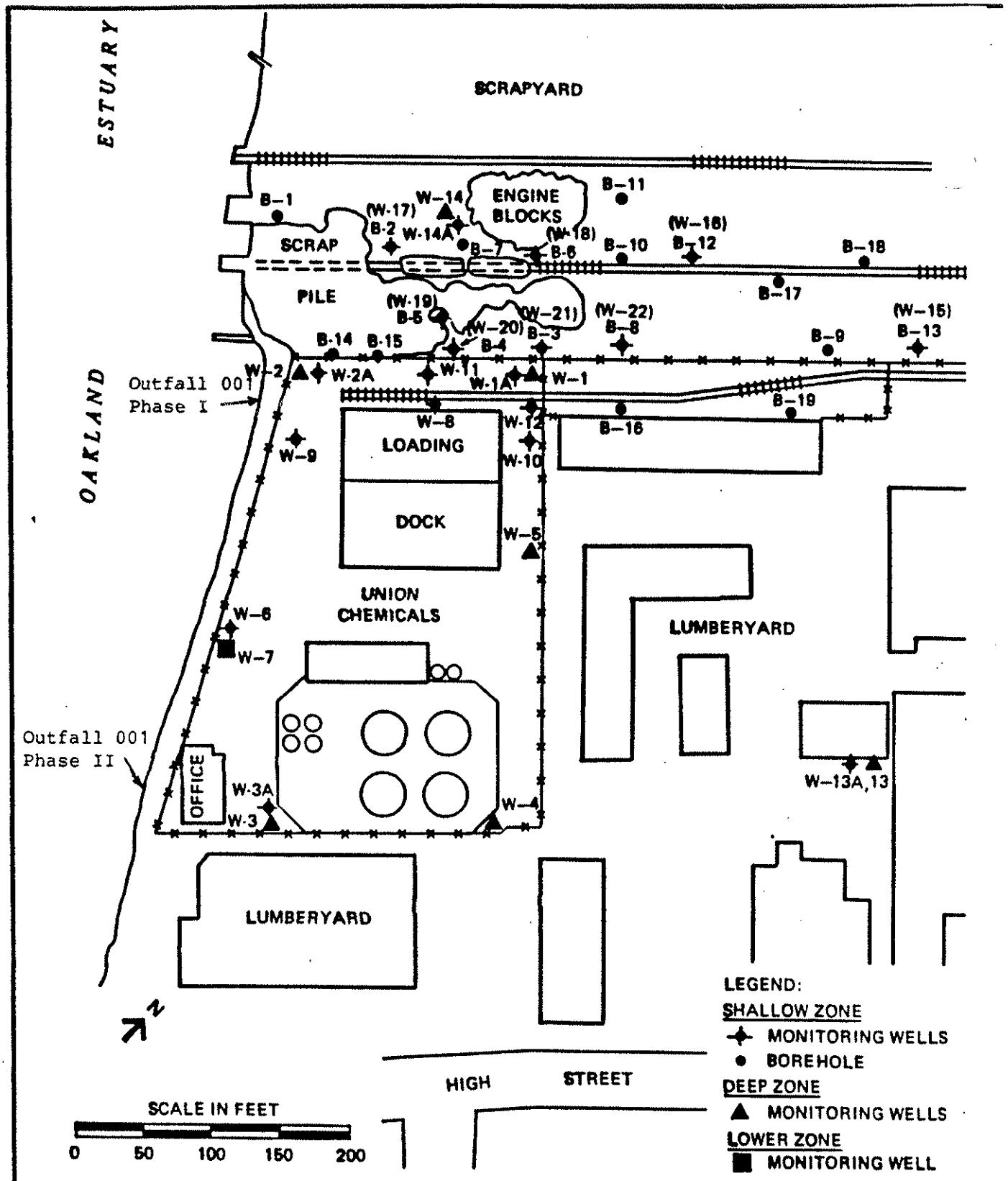
(1) The priority pollutant scan can be used to satisfy Items V and VI of NPDES application Form 2C (followup data).

(2) The Ketones are defined as acetone, methyl ethyl ketone and methyl isobutyl ketone.

(3) PAH = Polynuclear Aromatic Hydrocarbons, and are defined as acenapthene, anthracene, chyrsene, fluoranthene, fluorene, phenanthrene, pyrene, benzo (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, and benzo (k) fluoranthene.

The Phenols are defined as phenol, 2-methylphenol, 4-methylphenol, methyl phenol, 2,4-dimethylphenol, 2,4,6-trichlorophenol, and pentachlorophenol.

The discharger shall monitor for PAH's and Phenols in influent and effluent samples monthly for the first four (4) months and shall reduce to quarterly effluent sampling thereafter, unless notified by the Executive Officer.



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Attachment A:

Site Location Map

UNOCAL Corporation

DRAWN BY:	DATE:	DRWG NO.